

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Method and Apparatus for the Treatment of Dust-laden Air

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5 SCHAFT M.b.H., a Body Corporate organised
under the Laws of Germany, of Leverkusen-
Bayerwerk, Germany, do hereby declare the
invention, for which we pray that a patent
may be granted to us, and the method by
10 which it is to be performed, to be particu-
larly described in and by the following state-
ment:—

The present invention relates to the pre-
vention of deposition of dust particles from
15 a dust-laden gas stream during passage of
the said dust-laden gas stream into dust col-
lecting apparatus, such as sifting devices, ap-
paratus wherein material to be dried is car-
ried by an air stream, and pipe bends.

20 It is known to fit immobile guide vanes in
passages to secure controlled, e.g., laminar,
flow of a dust-laden gas through the pas-
sages, these vanes being disposed substan-
tially longitudinally of the passages. During
25 operation, however, dust is continuously de-
posited on guide vanes of this type, so that
the passages become clogged and the gas
streams turbulent.

The known dust collectors which are
30 equipped with guide vanes in the inlet gas
passages are effective in collecting and re-
moving dust from the gas passing into the
apparatus only so long as the air or gas
passages do not become clogged and thus
35 prevent the proper working of the apparatus.
In these dust collectors, dust tends to
deposit on, and adhere to, the surfaces of the
guide vanes, especially when the air or gas
stream contains dust which is sticky or of
40 very small particle size. Attempts have been
made to prevent dust from adhering to the
surface of the guide vanes by polishing or
chrome plating the surfaces. It has been
45 found, however, that the polish or chrome
coating on the surfaces of the guide vanes is

[Price 3/-]

destroyed within a short time by the abra-
sive action of the dust.

An object of the invention is to provide a
method of preventing the premature deposi-
tion of dust particles from a dust-laden gas 50
stream during passage thereof into dust col-
lecting apparatus, which deposition would
obstruct the free passage of the gas and re-
duces the effectiveness of the apparatus.
Another object of the invention is to pro- 55
vide a method of, and means for, preventing
the clogging with dust of the passages
through which gas streams carrying dust are
introduced into dust collecting apparatus.

The objects of the invention are accom- 60
plished by installing in the passage leading
to the above described dust collecting ap-
paratus (through which passage gas streams
carrying dust are introduced into the appa-
ratus), guide vanes made of flexible material, 65
the said guide vanes being arranged substan-
tially longitudinally of the passages in such
a manner that they vibrate or flutter under
the influence of the dust-laden gas stream so
as to prevent the dust from separating from 70
the gas stream prematurely or to ensure that
any smaller deposits of dust are instantly
removed. It is not absolutely necessary
according to the invention to use guide vanes
which are made entirely of flexible material, 75
as it suffices in most cases to make the reeds
or the ends of these vanes of flexible mate-
rial so that deposition of dust particles is
prevented by the vibrating or fluttering
action of the reeds or ends under the influ- 80
ence of the dust-laden gas stream. Further-
more, it is possible to attach to the guide
vanes, flaps (or other appropriate means of
flexible material) which are moved by the
dust-laden gas stream passing along them. 85
Suitable flexible materials for the purpose
of the invention are, for instance, rubber and
plastics. The motion of the guide vanes,
their ends or flaps attached thereto, taking
place under the influence of the gas passing 90

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along the vanes made of flexible material, produces additional stresses and strains which cause thin layers of dust particles deposited on these guide vanes to fly or pop off therefrom at the instant they are being deposited thereon.

The guide vanes as herein described do not therefore require the cleaning operations necessary with the various types of mechanical dust collectors now in use.

The invention is further illustrated by way of examples in the accompanying drawing in which:—

Fig. 1 is a diagram illustrating part of 15 the inlet pipe of a dust collecting apparatus; while

Figs. 2 and 3 show details of a guide vane.

As shown in Fig. 1, a bent pipe 1 has arranged in it guide vanes 2 attached by fixing means 3. Reference numerals 4 denote the ends of the guide vanes 2. A gas stream carrying dust passes through the pipe 1 in the direction of the arrow and causes the guide vanes 2 to vibrate or flutter, thereby 25 preventing dust particles from adhering to the guide vanes. The floating motion of the guide vanes 2 is indicated by the dotted lines 5 and 6.

Figs. 2 and 3 show a guide vane 7 the 30 pointed end 8 of which is of flexible material.

What we claim is:—

1. A method of preventing the deposition of dust particles from a dust-laden gas 35 stream during its passage into dust collecting apparatus, which comprises arranging in the inlet passages of the dust-collecting apparatus guide vanes of flexible material, said

guide vanes being so arranged substantially longitudinally of the passages that they are 40 caused to vibrate under the influence of said dust-laden gas stream.

2. A method as claimed in Claim 1, wherein the guide vanes of flexible material are arranged in such a manner that the ends 45 of said guide vanes are caused to vibrate under the influence of said dust-laden gas stream.

3. A method as claimed in Claim 1 wherein said guide vanes are provided with 50 flaps of flexible material in such a manner that said flaps are caused to vibrate under the influence of said dust-laden gas stream.

4. Means for introducing a dust-laden gas stream into a dust collecting apparatus, comprising a passage and, disposed in and substantially longitudinally of said passage, guide vanes which are wholly or partly of flexible material and are so arranged that they will vibrate under the influence of the 60 said gas stream.

5. A method of dust collection substantially as described with reference to Fig. 1 or to Figs. 2 and 3 of the accompanying drawings. 65

6. Means as claimed in Claim 4, substantially as described with reference to Fig. 1 or to Figs. 2 and 3 of the accompanying drawings.

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1 SHEET

*This drawing is a reproduction of
the Original on a reduced scale.*

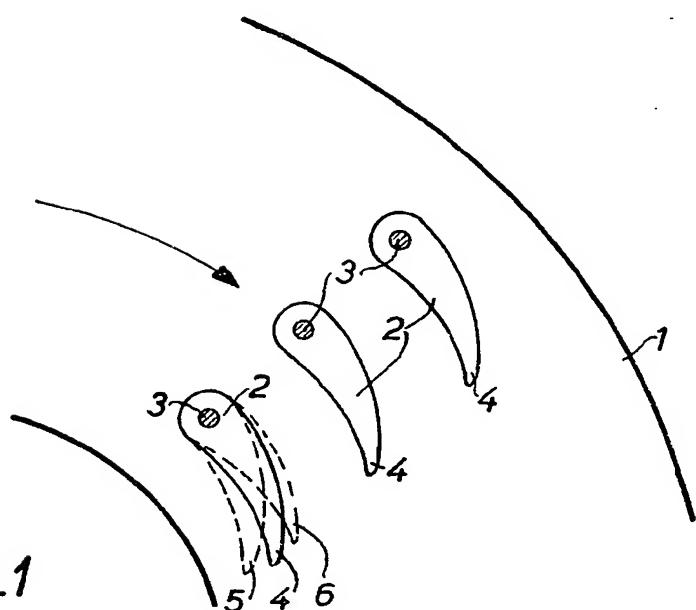


FIG.1

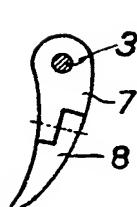


FIG.2

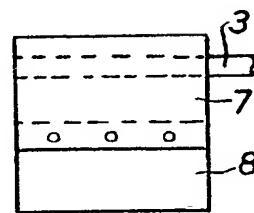


FIG.3

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